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THE AMERICAN JOURNAL
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VOL. XXXIV. DECEMBER, 1917. No. 12

VALEDICTORY.

"The American Journal of Ophthalmology," the publication of which began in April, 1884, ceases to exist as an independent Ophthalmic Journal with this number. As has been announced in the October number, it has been added to those American Ophthalmic journals which, merged together, will in future appear as the new American Journal of Ophthalmology.

For almost 34 years its Editor has tried to serve the progress of Ophthalmic science by its publication. That his ideals have not always been realized none knows better than he. Yet, the numerous letters received expressing regret at its being discontinued, as well as the words of appreciation which have reached him in these days, have shown him that his efforts have certainly in some measure been successful.

That, in whatever measure of such success "The American Journal of Ophthalmology" has obtained, the help of its collaborators as well as that of its co-editors has been of very great value, the Editor is fully aware of, and he wishes to make use of this occasion to express to these gentlemen his high appreciation and heartfelt thanks for their co-operation.

May their work help in future to make the new American Journal of Ophthalmology what its founders expect of it.

All of our subscribers are herewith urged to subscribe to the new Journal, and thus, from a material standpoint, help it to reach its high aims.

The American Journal of Ophthalmology is dead. Long live the NEW American Journal of Ophthalmology!

ADOLF ALT.

ORIGINAL ARTICLES.

FIVE OCULAR GROWTHS OF A PAPILLOMATOUS NATURE.*

By Harvey D. Lamb, M.D.,
ST. LOUIS, MO.

A papilloma is an overgrowth or a hypertrophy of several or more papillæ of the skin or of a mucous membrane.

The papillæ are the little finger-like single or branched elevations which project from the surface of the dermis or corium. They consist of fine connective and elastic tissue fibres mostly arranged parallel to the long axis of the papilla. The majority contain capillary loops. To form the papilloma it is believed that there is first a proliferation of this connective tissue, elastic fibres and capillaries in the papillæ, which proliferation may be accompanied by some branching of these tissues, and in some cases by very extensive branching and rebranching. Keeping pace with the connective tissue and bloodvessel growth, however, are corresponding proliferations of the epithelial covering of the original papillæ, so that every connective-tissue-capillary-strand is surrounded by many layers of epithelium. As in the original epidermis the epithelial cells which lie the deepest are cylindrical and consist of but few layers. Following upon these come many layers of cubical or polygonal cells and most peripherally numerous layers of flattened cells. The outer layers sometimes show signs of cornification.

Fuchs divides ocular papillomas into two varieties, one with a broad base and a polypoid one; the former occurring in places where there are normal papillæ, as on the skin of the lid or at the limbus, present a cauliflower-like surface which on account of the pressure of the lids becomes more flattened; the polypoid form of papilloma, forming in places where there are normally no papillæ, usually has a pedicle, branches extensively and arborescently, and presents a surface of smaller subdivisions or lobes.

Papillomas may appear upon any part of the conjunctiva but are most frequent at the inner canthus and at the limbus, less frequent on the bulbar conjunctiva in the superior fornix, the

*Read at the meeting of the St. Louis Ophthalmological Society, December 17th, 1917.

edge and skin of the lid. Freytag, of Leipzig, who collected 34 cases from the literature, found that the papilloma in 11 cases had developed at the limbus, in 10 cases on the plica semilunaris or the caruncle, upon the bulbar conjunctiva in 6 cases, on the conjunctiva of the upper eyelids in 3 cases, and in one case, reported by Dupuy-Dutemps, the papilloma was found in the tear-sac.

These tumors occur more often as single growths, 23 out of 24 cases in Freytag's review. However, the formation of multiple papillomas has been reported by Gillet de Grandmont, von Rechtperg, Hirschberg and Birnbacher in a 4½ year old boy, by Rosenhauch of 2 papillomas in each eye at the limbus in a boy of 7 years of age, by Freytag in a boy of 4 years of about 7 papillomas on the conjunctiva of the lower eyelid, many on the conjunctiva of the upper eyelid, and several on the nasal side of the bulbar conjunctiva, all in the left eye, and by Staicovici where multiple small papillomata occurred on the eyelids and the bulbar conjunctiva and the cornea was covered with many small sessile vegetations of the same character.

The color of the ocular papilloma is usually pale or greyish-red, the consistency soft and delicate. The size of these neoplasms varies from that of a pinhead to that of a child's fist. Von Rechtperg described a papilloma in a 69 year old man which was 4 cm. broad and 3 cm. high, another the size of a child's fist on the skin of the upper eyelid, and Fischer one whose greatest breadth was 33 mm. and whose height was 24.5 mm.

Saemisch and Lagrange have called attention to the rarity of these tumors; Saemisch in 1904 gave references from the literature of 38 cases, but Freytag quotes Velhagen as reporting in 1904 90 cases of ocular papilloma described by some 60 authors. Freytag in the literature from 1904 to 1914 found 34 cases reported by 29 authors. The male sex is more often the victim of this variety of neoplasm; in Saemisch's series among 24 cases, 22 were males; in Freytag's review of 29 cases, in 19 the patient was a male.

As regards the age Saemisch found that of 23 patients only 8 were under 40 years; and Freytag the same, for of 24 cases 8 were under 40 years and 16 over 40 years.

The ætiology of papillomas is quite unknown. While Lauber and Grunert consider a chronic inflammation as the cause, Gutmann and Reis are of the view that the inflammation is secondary to the tumor-formation. There have also been several cases

where the growth occurred after a preceding trauma. Fischer reports a papilloma being present in an eye which two years before had been struck by an ear of corn; Best records one in which a chip of stone had hit the eye; Rosenhauch one where the tumor started one week after an injury to the upper eyelid and eyeball from the prong of a pitch-fork; Lauber records that a lime-burn had preceded the tumor formation in one of his cases, and de Schweinitiz has described a papillomatous growth, occurring in conjunction with a traumatic conjunctivitis, which had developed as the result of the eye coming in short contact with the fin of a fish.

CASE REPORTS AND MICROSCOPIC FINDINGS.

CASE 1.—The patient, a man 64 years of age, consulted Dr. Schwartz one year after first noticing a growth at the limbus of the left eye. This growth had several times seemed to project, then to dry up and fall off, or disappear. When first seen there were mushroom-like growths in the left eye, one 5x7 mm. in the upper nasal limbus, and the other 4x5 mm. in the lower middle limbus, both overlapping the cornea. These growths were excised. Five weeks later the patient returned to Dr. Schwartz with a small similar growth at the nasal limbus which was excised. Eight weeks later another growth was removed from the upper temporal limbus. Six months later there was a nodule near the superior limbus.

Microscopic Findings.—The specimens, several thin flat pieces of various sizes, were found composed almost entirely of epithelial cells. Here and there are seen centers of very loose connective tissue, many narrow and elongated, others round or oval. Each centre contains one or more bloodvessels and in the larger spaces an arteriole may be seen. Sharply separated from the connective tissue centers by a basement-membrane, are the layers of cylindrical-cell epithelium, their small nuclei staining darkly. The cells here are smaller and more compact, further away from these centers in the polygonal cell layers the nuclei stain less and less distinctly and the cells and their nuclei become swollen. In the layers of flattened cells both the nuclei and the cytoplasm seem much swollen and but lightly stained. In many places here the nuclei hardly stain at all and the cytoplasm is much broken up and vacuolated. This vacuolation in some few places has formed entirely clear round or oval spaces. Of course these are signs of degeneration due to the distance from the bloodvessels.

Some rather scanty infiltration with lymphocytes is seen, most marked near the connective tissue centres. More lymphocytic infiltration is present in places in the small amount of corneal and subconjunctival tissue attached to the growth. The growth is separated from the underlying structures by a basement membrane. The tumor cells nearest this membrane are generally cylindrical and are more compact, and their nuclei stain better.

The superficial layers of the growth are much flattened, but there are no signs of keratinization as all the cells show nuclei.

Case 2.—A man 51 years of age consulted Dr. Green for a growth at the nasal canthus of the left eye.

He found a fleshy vascular-looking growth at the inner limbus extending about 4 mm. onto the cornea. Tortuous and dilated conjunctival vessels proceeded to it.

Microscopic Findings.—The excised piece of tissue is a very thin, flat, disc-shaped specimen, about one-half of which is seen to have come from off the cornea. The surface is very rough with rather deep furrows. These furrows separate the superficially lying connective tissue-capillary centers, which are quite closely set in the corneal portion of the specimen. In some places there are epithelial pearls, the centres of which are hyaline. The subjacent tissue of the scleral portion contains a rather large amount of connective tissue bundles, a moderate amount of lymphocytic infiltration and many engorged bloodvessels.

Case 3.—A 70 years old man, four weeks before consulting Dr. Henderson had received a "back fire" from a gun in the right eye. Following this the eye felt sandy.

There was a light greyish growth, the size of a half a pea at the nasal limbus, overlapping the cornea a little. Several large conjunctival vessels proceeded to it.

Microscopical Findings.—The connective tissue-centers in this growth are very few and small. The epithelial cells for the most part are swollen and the nuclei stain poorly. Many epithelial pearls are present. Near the apex of the growth there is a large area containing loose masses of hyaline material, taking the eosin stain strongly. Many of these contain nuclei and all seem to be keratinized tissue. The nuclei of many of the cells surrounding this area show signs of degeneration.

Here and there mitotic figures can be made out, also a few polymorphonuclear leucocytes, while in the subepithelial con-

nective tissue beyond the limbus there is in places a moderate amount of lymphocytic infiltration. Many of the capillaries here are quite engorged. The surface of the tumor is quite smooth and shows no keratinization. The fact that this rather large mass of epithelial cells contains so little connective tissue, that so many of the cells show degeneration and hyaline change in the epithelial pearls and in the large broken-down tissue-area, seems to prove that there is a definite tendency toward an epitheliomatous change.

CASE 4.—A 60 year old man had had a small greyish-red growth in the middle of the margin of the lower eyelid, for about two months. It was about the size of a pea with a short thick pedicle. The surface was lobulated.

Microscopical Findings.—Longitudinal sections show a very thick central stem containing a solid mass of connective tissue bundles and several thick walled bloodvessels The main part of the growth is made up of about seven lobes separated from each other by deep fissures or furrows. These lobes are quite different from each other in size and shape. Each lobe contains many large connective tissue-capillary-centres and many vacuolated spaces of various sizes.

CASE 5.—F. S , a man 75 years old, first consulted Dr. Ewing on account of a growth in the left eye. It was a flat sessile tumor 8 mm. long, 5 mm. broad and 1½ mm. thick, at the temporal limbus extending about 2 mm. onto the cornea. Its color was pinkish-white and its surface cauliflower-like.

Microscopical Findings.—This growth had been divided into numerous small pieces when it was received by me. All the pieces but one were typical lobes or parts of a lobe. Polymorphonuclear leucocytes are present in large quantity in the connective tissue centers, less so among the epithelial cells.

The cause of the presence of these leucocytes is seen in the atypical piece of tissue from this growth. This piece is crescent shaped and is apparently the swollen superficial portion of one of the lobes. The connective tissue centers for the most part are very large and contain many bloodvessels, many of large calibre. All the epithelial cells are swollen and there is much hyaline change in the flattened cells. On the end from which the accompanying illustration was made, this hyaline change had progressed to the formation of a thick layer of keratinized tissue,

as is seen at the extreme left of the picture, and also just to the right of the center.

The dense infiltration is due almost altogether to small lymphocytes. It has progressed to such an extent as to make the impression that an ulcer was forming.

Probably some trauma or other mechanical irritation had produced these changes.

All five of the growths in this series occurred in men, and these were over 50 years old.

The differential diagnosis of papilloma can be made rather easily from the microscopic appearance, although there might be places where it would be difficult even microscopically to dis-

tinguish it from epithelioma. But macroscopically it may be confused with the processes at the limbus of spring-catarrh, with fibroma, tuberculosis of the conjunctiva, acanthosis nigricans and most frequently with epithelioma. In general the papilloma grows away from the underlying tissues, causes little inflammatory reaction, and no invasion of the surrounding structures. The epithelioma on the other hand sends its advancing processes downward into the surrounding issues, causes marked inflammatory infiltration, and swelling in the neighboring lymph glands.

The papilloma is therefore a benign growth, although it possesses a great tendency to recur. Among Freytag's 34 cases 12 showed one or more recurrences. Recurrences can occur with great rapidity.

Although this is rare, yet there are about 8 cases in the literature of carcinomatous change in a papilloma, or where a recurrence occurred with a cancer after previous excision of a papilloma. Pasetti and Barbacci think that every papilloma which undergoes a carcinomatous degeneration, or which returns as malignant, is from the beginning a carcinoma. Lagrange on the other hand thinks there is the possibility of change to malignant tissue.

Von Rechtperg records a case in a 69 years old man of a papilloma undergoing a carcinomatous degeneration and extending into the eyeball. Almost the entire cornea had disappeared and the growth progressed until it filled about one-fourth of the volume of the eyeball. Histologically it was seen at the upper lateral and lower portions of the limbus that short solid epithelial cords had extended into the episcleral tissue and between the scleral lamellæ. Peripheral parts of the intrabulbar portion on the nasal side also showed cancerous changes and long branching epithelial cords invading the retinal tissue.

Horner in 1871 reported the first case of papilloma in the literature. This was in a man 62 years old. After the removal of a large conjunctival papilloma a recurrence occurred which caused ulceration of the cornea. The patient died of gastric carcinoma before complete destruction of the eyeball. Sufficient histological examination was not made.

Lagrange and Mazet have described a similar case in a 61 years old man in which a recurrence invaded the eyeball.

Freytag's series of papilloma occurring between 1904 and 1914 contained 4 with carcinomatous change, all taking place in a recurrent growth. These are as follows:

1st. Wagenmann's case was a 15 year old girl in which a papilloma grew involving the caruncle. This was removed and recurred twice, the last time growing to the size of a small hazel nut in the course of one month. The patient next appeared in the clinic with a growth of 8 years standing, which measured 3 cm. broad, and 5 cm. thick. Histologically this neoplasm showed a superficial papillary portion, while the large solid part showed deeply a quite epithelial character with formation of alveoli.

2nd. Cosmettatos reported the occurrence of a papilloma at the temporal limbus in a woman of 36 years, who 14 years before had received a wound at the same spot. This growth was removed and returned almost immediately. Two years later when it had completely covered the cornea the eyeball was

enucleated. On section it was found that the neoplasm had destroyed Bowman's membrane, also the superficial lamellæ of the cornea, and in the center of the cornea the destruction had proceeded to Descemet's membrane. At one part of the limbus the epithelial masses are devoid of bloodvessels and in their center were found some hyaline pearls.

The author therefore concludes that this case is that of a papilloma which has commenced to undergo an epitheliomatous transformation.

3rd. Rosenhauch has recorded a papilloma occurring in a 60 year old woman one week after the patient had been struck in the left upper eyelid with a pitch-fork. A recurrence occurred which showed large epithelial plugs in the subconjunctival tissue.

4th. Reis' case is unique in the literature. He observed in a 61 years old man a diffuse papillomatous formation over a large part of the scleral conjunctiva and almost the entire cornea. With the binocular microscope he saw the involved areas of the cornea become first hazy and then invaded by many fine bloodvessels. At the ends of these little bloodvessels small pearshaped enlargements developed, which grew upwards and together formed a papillomatous plaque. The patient died while under observation from hæmoptysis. The enucleated eyeball showed in one place that the connective tissue component of the papilloma had disappeared and here the epithelium had sent off many long slender projections, which pushed along between the lamellæ of the substantia propria of the cornea. For most painstaking, thorough observation and description of the fine details this work of Reis cannot be surpassed. Von Rechtperg thinks conjunctival papillomas must be considered as something more than benign tumors, especially in elderly people.

THERAPY.

In every case the papilloma should be removed as early as possible by excision, going as far as one can into sound tissue. This should be followed by the application of the actual cautery or galvano-cautery. Agricola found after mesothorium-irradiation healing without further return, whereas before in spite of extensive excision and cauterization the papilloma had recurred five times.

POST-CILIARY SCLERAL TREPHINING FOR GLAUCOMA; THE CONJUNCTIVAL FLAP; AN IMPROVISED TREPHINE.

By A. E. Ewing, M.D.,
ST. LOUIS, MO.

In the cases of glaucoma reported in the American Journal of Ophthalmology, July, 1917, for which the operation of post-ciliary scleral trephining was employed, the method of forming the conjunctival flap was to make it with the first incision through the conjunctival and episcleral tissues down to the sclera. In this way the filtration from the supra-choroidal space was directly into the capsule of Tenon with only a possibility of its passing into the conjunctiva indirectly along the edges of the conjunctival wound. In the main with these cases this method has been successful, but in one of the two with aphakia it has proved to be a partial failure. On this account another method has been lately employed which may be more satisfactory. By this method care was exercised to avoid entering the capsule of Tenon by separating the conjunctiva from the episcleral tissue, or fascia of Tenon, over the desired area for the flap, say 8 or 10 mm. When the separation had been accomplished an attempt was made to trephine through the episcleral tissue with a sharp 2.5 mm. trephine, only to find that this tissue slipped here and there under the trephine to great disadvantage. Finally the trephine was abandoned and the episcleral tissue was button-holed with scissors down to the sclera at the location for the opening into the sclera at the base of the conjunctival flap. The trephining through the sclera was then accomplished as in the article above mentioned and without injury to the choroid. The conjunctival flap was replaced and held in position with a firm silk suture at its apex. There was no complication in the healing, but there was greater conjunctival swelling about the wound than in the cases previously mentioned, and the soreness on pressure was more persistent. Whether this may mean better drainage my experience is as yet too limited to determine, but the continued soreness may mean that the thinner protection to the choroid is not desirable, although there is no intraocular evidence that the choroid is at all involved. The case is of interest in that about two-thirds of the field was destroyed, all of that to the nasal side, the scotoma extending to the

center previous to the operation. Since the operation there is a little gained in the central field and the patient is more certain in his movements. The vision, 20/30, is about the same but the letters are more readily recognized. The globe has been perfectly quiet, except in the region of the wound, and the pupil has been actively responsive to light. For ten days following the operation the eye was cleansed only with normal saline solution once daily. Pilocarpine 2 per cent. solution was then tried once daily for three days but was discontinued because it seemed to increase the soreness about the wound. The case presented itself November 11th, 1917. Because of no improvement from miotics the eye was operated on November 17th. The patient was a man 51 years of age; previous to the operation T. 53 mm. Hg., Schiötz; ten days after the operation T. 36, Schiötz.

In this connection I wish also to report another case of similar trephining in a lady aged 70, whose left eye had been blind with glaucoma for three years. When she presented herself, July 27, 1917, there was moderate disturbance of the corneal epithelium, although the globe was quiet; the pupil was dilated to 6 mm., T. 70, Schiötz, and there was complaint of frequent dull aching in the eye. The eye was treated during the summer, but the dull ache persisted. On November 11th, the eye was operated on, a 2 mm. trephine being employed. Following this the dull aching of the globe disappeared, and the condition of the corneal epithelium improved, although there was no change in the pupil and the tension remained high, 55 Schiötz.

In the first case a 2.5 mm. trephine was employed. As one could not be found among our instrument dealers, an improvised one was constructed by putting a very sharp edge on a one inch tube made for punching eyelets. These tubes may be had in any size and are made of very good steel. For a handle a laboratory rubber stopper with a single hole in the centre was resorted to, the stopper having been trimmed with a knife to the conical shape of the Elliot trephine handle, which I have found to be very satisfactory. The rubber is capable of absolute sterilization and it makes an excellent handle, as in the manipulation it is less liable to slip in the fingers than metal.

PARINAUD'S CONJUNCTIVITIS.*

By E. C. Spitze, M.D.,
EAST ST. LOUIS, ILL.

Parinaud's conjunctivitis (also called infectious conjunctivitis, septic conjunctivitis, or, according to Goldzieher, lymphoma of the conjunctiva) was first described by Parinaud in 1889. Because of the similarity of this disease to glanders in the horse, he supposed it to be a manifestation of the same, or a similar infection, in man, which, as he supposed, was transmitted from the horse. Later researches by Chaillous of France, Gifford Verhoeff and Derby of this country, have failed to substantiate this theory. According to G. S. Derby, of Boston, the disease has been observed only in the temperate zone and occurs more frequently in the autumn. The sexes are about equally affected and all ages seem liable to the disease. Of the 50 cases reported in the literature 70 per cent. were under 25 years of age. The youngest patient recorded was one and one-half years of age, and the oldest 59 years. As a rule the disease is unilateral. Only a few cases have been reported in which both eyes were affected. Of the five cases here reported, both eyes were affected in only one case.

The disease manifests itself by swelling of the eyelids, usually more marked in the upper, hyperæmia and œdema of the bulbar conjunctiva and moderate muco-purulent discharge. The three chief symptoms of the disease are a characteristic lymphoid swelling of the conjunctiva, accompanied by dirty grayish ulcerations, enlarged preauricular glands and fever. The rise in temperature begins early and, though usually not very marked, continues until the ulcers have disappeared. The typical conjunctival lesions consist of large reddish polypoid vegetations about evenly distributed over the conjunctival surfaces of the lids. These do not coalesce and form ridges along the retrotarsal folds as in trachoma. Among these vegetations small yellowish granules appear and later on superficial ulcers. It is these ulcers which will help one to make the diagnosis if the case has proven at all puzzling as some of them well may. The ulcers appear in the conjunctiva of the lids, usually near the center, are very superficial with very little discharge which is of a dirty grayish color. When once seen they will never be forgotten.

*Read for the St. Louis Ophthalmic Conference, December 11th, 1917.

The swelling of the glands usually appears simultaneously with the inflammation in the eye or soon after and always on the side of the affected eye. The glands involved are the preauricular, parotid and submaxillary. Occasionally other cervical glands are involved. Acute tonsillitis has been noted. Corneal changes in the form of a keratitis may occur, but this is very rare. The uveal tract is not affected. The disease may last from 6 weeks to 6 months.

The specific cause of this disease so far is still in doubt. McCrae found in one case a bacillus which resembled the Klebs-Loeffler bacillus which he regarded as the probable cause. Sinclair and Shehan have isolated two varieties of white staphylococci from the necrotic areas in one case. Tuberculosis which is present in some cases cannot always be substantiated. Hoar maintains that in a majority of cases there is a history of an opportunity of animal contagion. This was present in only one of the cases reported here, but this theory thus far is unsubstantiated. Verhoeff, of Boston, in an investigation of cases found a leptothrix forming filamentous masses walled off by an area of cell necrosis. Microscopic examination of the excised tissue reveals a cellular infiltration consisting of lymphoid and phagocytic cells and marked cell necrosis.

Prognosis.—The prognosis is good as the disease runs its course in from three to six months.

Treatment.—Silver nitrate from beginning to end in solutions of gr. i to oz. i, and as high as 10 per cent. to the ulcers. The newer silver salts such as argyrol, protargol and silvol are useful. Applications of copper sulphate may be tried. If the lymphoid vegtations are very large they may be excised after thorough cocainizing. The ulcers are thoroughly cleansed with some antiseptic solution and 1 per cent. silver nitrate applied with a swab. The method followed in these cases was, after instilling holocain 1/120, to cleanse the ulcer well with a small swab of cotton on a tooth pick saturated with what has been called Dr. Ewing's antiseptic solution, consisting of 20 gr. resorcin to an oz. of alcohol in which 120 gr. of salicylic acid have been dissolved. With this solution the pus and necrotic tissue are easily removed without doing any damage to the normal tissue. This solution has quite an anæsthetic effect, so that the silver nitrate solution, 1 per cent. or stronger, can then be applied with but very little, if any, discomfort.

Case No. 1.—Mr. T. R. S., age 25 years, office worker. When

first seen November 21, 1911, was confined to bed with a rising temperature, septic breath, malaise and general depression. The history was that he had returned from a hunting trip three days ago on which he had gotten quite wet. That day the left eye had become somewhat inflamed. Two days ago he again started on a hunting trip but was compelled to return home because he was not feeling well. The family physician, Dr. R., was called and found the patient with a temperature of 102 degrees, and other signs of an infection. The next day the temperature was 103 degrees and the other symptoms were increased. A beginning typhoid was suspected and all due precautions taken.

The upper lid of the left eye was swollen. Conjunctiva swollen and hyperæmic. Subconjunctival hæmorrhage at upper inner portion of the globe. Pupil somewhat sluggish, but dilates widely with atropin 1/120. Left pre-auricular and parotid glands swollen and entire left side of face swollen. Borax and ac. bor. wash, argyrol 25 per cent. and cold applications were ordered. November 23—Swelling increased. Numerous small round and oblong dirty grayish ulcers along the retrotarsal folds. Diagnosis. Parinaud's conjunctivitis. After holocain 1/120 the ulcers were cleansed with the antiseptic solution heretofore described, and silver nitrate 1 per cent., applied. Borax and ac. bor. and argyrol continued. 27th—Ulcers spreading. Widal negative. December 10—Ulcers gone. Vision normal. Von Pirquet negative. Smears negative. Culture, no growth. Submaxiliary glands reached the size of a hen's egg. Painting with iodine had but little effect. March 26—Glands continue enlarged. They finally suppurated and were incised. May—Recovered. Time, 6 months.

Case No. 2.—M. McL., age 12. December 14, 1912—Upper lid noticed to droop one week. To-day first noticed to be inflamed. No pain. Conjunctiva of lids covered with numerous slightly enlarged follicles, largest along retrotarsal folds. Moderate chemosis. Diagnosis: acute trachoma (?). Treatment arg. nit. and sol. ac. bor. The only history was that he lived at Piasa Chautauqua during the summer and frequently went bathing in the pool. Said he never washes his face or hands at school. Lived with his grandmother in a modern home. 21st—Crushed some of the larger follicles. No sago seed-like deposits 27th—Conjunctiva begins to show a dirty grayish appearance, 28th—Temp. 99.8. Numerous small dirty grayish ulcers on conjunctiva of upper lids, 2 mm. in diam. Some purulent discharge. Left perauricu-

lar gland slightly swollen. Ordered confined to bed in care of family physician. Diagnosis: Parinaud's conjunctivitis.

30th—Swelling and chemosis decreased. Rather marked circumcorneal swelling. Ulcers disappearing. Examination of smears negative. Cultures, no growth. 1913, January 2—Much improved. Swelling of glands almost entirely subsided. 19th—Swelling of glands entirely gone. 26th—Conjunctiva of lids nearly normal. 30th—Practically recovered. Time, 8 weeks.

CASE No. 3.—October 24, 1913, Miss N. M., referred by Dr. L. Patient first complained of a painful swelling below right ear 4 weeks ago. Very soon the right eye showed some inflammation. Both swelling and inflammation gradually increased. About this time he saw Dr. L., who diagnosed a probable "mumps", and advised that the sister and brother be kept out of school. O.D. a dirty grayish ulcer in center of conjunctiva of lower lid. Also numerous small grayish granulations. Moderate inflammation of upper lid. Globe normal. Temp. 100 degress. Pulse rapid. Preauricular, parotid and submaxiliary glands on right side swollen. Diagnosis: Parinaud's conjunctivitis. Used arg. 1/480 and ac. bor. 1/48. Rp. arg. 1/480, oz. 1, use N. and M. Advised castor oil to keep bowels regulated. 26th—Used arg. 1/240 and ac. bor. 1/48.

1914, May 10—Used arg. solution for a long time after the last visit here. Father states that patient was about well during the winter. Two weeks ago preauricular gland on right side was incised by Dr. C. because it was much swollen and inflamed. He was told by him that there was no connection between the glandular trouble and the eye affection. Glands still enlarged. Moderate conjunctivitis with a few small grayish infiltrated areas in conjunctiva of lower lid. Used arg. 1/480 and ac. bor. Continued arg. 1/480. Rx. syr. ferri iodidi, gtts 5 t.i.d. Rx. bor. and ac. bor. 1/48. Use N. and M. 24th—About recovered. Time, 7 months.

CASE No. 4.—December 1, 1913—E. R., 17 years. Drug clerk. Right eye slightly matted shut on arising 4 days ago. Was swollen and discharged pus. Has used ac. bor. solution and patent remedies. O.D. some swelling of lids, and bulbar conjunctiva which is much congested. Conjunctiva of lids swollen and follicles much enlarged, simulating trachoma. Numerous very small dirty grayish infiltrated spots in the conjunctiva of the lids. Used arg. 1/480 and ac. bor. 1/48. Rx. argyrol 20 per cent., use N. and M. Continued ac. bor. sol. t.i.d. Preauricular gland

on right side a little enlarged and painful to touch. Submaxillary gland on right side also painful to touch. Temp. 98.6 degrees. Diagnosis: Parinaud's conjunctivitis. 2nd—Treatment the same. Temp. 98.9 degrees. 3rd—do. 4th—the same. 5th, 7th and 8th —the same. Took patient to the O'Fallon Dispensary where Drs. Hardy and Gross confirmed the diagnosis of Parinaud's conjunctivitis. 9th—do. 14th—Swelling of lids considerably decreased. He did not come for treatment because he thought the eye was about well. I explained to him the necessity of treatment until the conjunctiva of the lids was smooth and normal. Treat. arg. 1/240, ac. bor. 1/48. Time about 6 weeks.

Case No. 5.—November 27, 1916—Mrs. O. D. N., age 25 years. Periodic attacks of inflammation and swelling of the right eye for the past 6 years, always during an attack of cold in the head. At times both eyes would be involved. During these attacks she has severe frontal headaches extending to the temple, vault and occiput. Vision 20/19, right and left. O.D. As. 0.50, Mer. 45 degrees; O.S. no As. Hm 0.50 v. 20/19 R. and L. Es. 1/2 degrees at 10 feet. O.D. considerable swelling of both cul-de-sacs of the serous type, indicating that the lymphatics are principally involved. A small dirty grayish infiltrated mass in the conjunctiva, 1 cm. above cornea and 1 below. Her breath has a foul odor. The right side of the nose is partly obstructed. Preauricular gland on the right side swollen. Dr. Arbuckle reports only a slight inflammation of the nasal tissue on the right side and possibly an ethmoid sinus suppuration on the left side. Rx. zinc. sozoiodol. and chloretone 1/480, oz. 1, use N. and M. Continue ac. bor. solution. 29th—Used arg. 1/480 ac. bor. 1/48 right and left. December 1—Swelling of conjunctiva is increased, also the swelling of the parotid and preauricular gland. Von Pirquet negative. Parinaud's conjunctivitis. Rx. argyrol 25 per cent. Use t.i.d. 2nd—Used holocain 1/120, arg. 1/240 and ac. bor. Temp. 99. 4th—do. 6th—do. 8th—do. Swelling decreasing. 9th—do. 16th—Much better. Used zinc. sozoiod. 1/240. Almost well. Smear and culture negative. January 23, 1917—V.=20/19 right and left. Doing well. Entirely recovered. Time about 10 weeks.

Recapitulation.—The following. points are worthy of note The cases all occurred in the late fall and early winter months, September, October, November, December and January. The ages range from 3 to 25 years, tw of them being 25 years of

age. Only one had both eyes affected but the glands were involved on only one side. In two cases it became necessary to incise the glands. These cases extended over a period of 6 and 7 months respectively. The shortest duration of any case was 6 weeks. In only one case, that of the little 3 year old girl, the swelling of the glands preceded the eye involvement. In only one case (that of Mr. S) was there a history of exposure to horses. This also was the only case where it was necessary to confine the patient to bed. The boy was confined in bed for only about 3 days as a precautionary measure on account of the fever.

INTERESTING CASE HISTORIES.*

Report of Cases.

By Ch. W. Tooker, M.D.,
St. Louis, Mo.

1. *Localized suppuration of a canaliculus.*

The presentation of this case history was suggested to me by a review of the last Year Book in which Gifford has described a case of suppuration of a canaliculus. This condition is either quite rare or frequently overlooked, for I can find little reference to it in the literature.

E. H., aet. 88, consulted me in May, 1915, because of a painful swelling in the upper lid of the right eye at the angle of the nose, which had annoyed him for several weeks. For a long time his eyelids had been inflamed. The only points of especial interest in the examination were the presence of chronic trachoma in the lids of both eyes, and in the upper lid of the right eye an abscess of the canaliculus draining neither into the lachrymal sac nor into the conjunctival sac. There was a marked inflammatory reaction surrounding the dilated portion of the canaliculus producing a tumor the size of a bean. The skin incision made over the swelling was followed by the escape of a cheesy purulent liquid containing staphylococci and streptococci. The diseased area was thoroughly curetted and washed out. The upper punctum was freely incised and fluid injected through the canaliculus into the

*Read at the meeting of the St. Louis Ophthalmological Society, November 26th, 1917.

abscess cavity. After a week's treatment drainage into the lacrimal sac and into the nose was effected. The skin wound healed nicely and after several months fluid could be injected from the upper punctum into the tear sac and into the nose.

This localized suppuration could have originated outside the canaliculus and could have burrowed into it, but it is more reasonable to suppose that the canaliculus became occluded at both narrowed orifices externally and internally following an extension of the trachomatous processes from the conjunctiva. The occluded passage then probably became infected and an abscess resulted. In the portion of the upper lid containing the canaliculus there are no Meibomian glands and few sebaceous glands, sweat glands and hair follicles, consequently the opportunities for suppurative inflammation to originate outside the canaliculus are not numercus.

In only one of the eight standard text books consulted was there any mention of suppuration of a canaliculus, and the more recent year books do not contain reports of such cases, nor do the ophthalmic journals. The new American Encyclopædia of Ophthalmology states that mucocele of the canaliculus is a very rare disease and that the liquid becomes infected. The opinion of Gifford (*Ophthalmic Record*, Vol. 25, No. 9) relative to this condition seems to be substantiated in the case history here presented. The suppurative process seems to be here associated with the atrophic stage of trachoma.

2. *Report of a case of double congenital cataract and apparently total aniridia. Operative failure.*

This case history is presented because the patient has been examined by several members of the society during the last twenty-five years and they may be interested in it.*

Miss N. M., aet. 36, came to me on July 23, 1916, for an examination of her eyes and operative treatment, if judged advisable.

*This case had been seen and examined by the late Dr. John Green, of this city, in 1884. The following extracts of the notes made by him and kindly furnished by Dr. A. E. Ewing are added here to make the history more complete:

November 3d, 1884, A. M., child, 6 years old. Congenital cataract both and lamellar cataract. Absence of iris, born so, as there is no history of ophthalmia in infancy. V.=6/80. H. 1/24. Occasional glimpses of disks and vessels through clearer zones of lens, ophthalmoscope 6 inches from eye; no correcting glass. Moderate nystagmus and photophobia, both much less than they used to be. Cocain hydrochlorate 1/25 used in both eyes; after 5 minutes less nystagmus, opens eyes better.

The patient was under observation of Dr. Green until 1893. During these years she was given glasses (+3.5 D both eyes), which enabled her to go to kindergarten and then to the public school.—(Alt.)

Ever since she can remember her vision has been poor, but she has been able to read large type and has secured a fair general education. She has never had any serious illness and has enjoyed good health with the exception of several attacks of inflammation in the left eye. Her parents were not related before marriage, and there is no history of eye trouble in her mother's or father's family, nor among her own brothers or sisters. She is the third child in a sequence of six, and during this pregnancy her mother experienced a severe nervous shock caused by the death during convulsions of another of her children.

The patient is of good physical appearance, average intelligence and presents no abnormalities other than those found in her eyes. Her urine and blood pressure are normal. The vision of her right eye equals 9/240 (excentric), and the vision of her left eye equals 6/240 (excentric). She can read No. 13 of the Jaeger type with her right eye but nothing with her left eye. The cornea of both eyes contains nebulæ, especially abundant and marked in her left eye.

No iris can be seen in either eye, and surrounding the partially opaque lenses there is a clear dark area which appears as a red ring on indirect illumination, and with the ophthalmoscope. The lens changes are similar in the two eyes, consisting of a posterior polar disc shaped opacity surrounded by a small clear ring, which is again surrounded by an opaque annular zone near the periphery of the lens. Extending forward from the posterior polar disc in either lens, is a conical opaque area of lesser density terminating in a small white spot in the center of the anterior pole. The details of the eye grounds cannot be seen well enough for definite description.

After consultation with Dr. W. A. Shoemaker, the left eye, the poorer of the two, was operated upon October 14th, 1916. Entering the anterior chamber at the limbus, on the temporal side with a knife needle, the anterior capsule of the lens was freely incised. The zonule was evidently poorly developed, for in making the discission the lens was partially dislocated backwards on the temporal side. There was a moderate reaction following the discission and later on two or three occasions the tension increased. During the following six months a gradual absorption of the lens substance occurred, leaving a thickened capsule, which prevented any material improvement in vision. In February, 1917, she developed a definite cyclitis which subsided under the use of atropine. The details of the fundus could

never be clearly seen. No change took place for several weeks, and as no further absorption could be expected, it was decided to attempt removal of the part of the capsule to permit of some useful vision. The zonule was known to be fragile and the capsule was apparently so thick that an attempt at a division of it would likely have resulted in merely displacing the capsule backwards. Therefore, on May 12th, 1917, a portion of the capsule was grasped through a small keratome incision at the limbus, gently pulled into the wound and excised. There was an escape of a considerable amount of vitreous and further operative interference was abandoned. The eye reacted moderately to the operative trauma, and gradually there developed an inflammatory exudate extending across the eye embedding the remaining part of the lens capsule. This exudate became organized and at the present time almost completely fills the site of the anterior chamber. The eye is gradually shrinking and perceives light doubtfully.

Double congenital cataract combined with aniridia is very uncommon. The aniridia is really only apparent, some rudimentary iris practically always being present, according to Treacher Collins. (*Researches in the Anatomy and Pathology of the Eye*).

The development of the iris is conditioned on the separation of the cornea and lens in embryonic life. Manz believes that an abnormally long contact between the cornea and the lens prevents the ingrowth of mesoplastic iris tissue and is also responsible for the production of anterior polar cataract. This theory seems more plausible than the theory of intra-uterine corneal ulcer perforation, and subsequent capsular opacity. The presence of a stunted iris explains the occasional occurrence of glaucoma in those eyes, for drainage can be blocked by a rudimentary iris, as readily as by a fully developed one, providing an inflammatory swelling encroaches upon the angle of the anterior chamber. Pagenstecher, in 1871, was the first to describe such a case, in which a patient with congenital aniridia developed glaucoma.

The patient here described, experienced on several occasions after the discission a rise of intraocular tension, following a low grade cyclitis, involving probably also the rudimentary iris. After the second operation the intraocular pressure fell, and has remained low.

Posterior polar cataract can be understood best by regarding it as evidence of a delay in the absorption of the tunica vasculosa lentis. In the present case it is possible that the heavy capsule

remaining after absorption of the lens also represented a persistent tunica vasculosa lentis.

The entire eye was, of course, poorly developed and the fundus was probably not normal. It was a poor operative risk, but she had very little to lose and a chance of gaining considerable vision. The choice of operation was influenced somewhat by Jackson's paper on discission (*Trans. Ophth. Sect. A. M. A.*, 1916) in which he reported absorption after discission in patients of middle age. His cases were not of this exact type, however. Our efforts at improving vision resulted in failure, but it has been interesting to study the eye in its various phases.

Case No. 3. *Ocular Chemosis.*

The following case was interesting, because of the startling appearance of an eyeball greatly enlarged by bulbar chemosis, and because of the rapid subsidence of the condition.

Mrs. C. L., aet. 53, was sent to me on June 30th, 1916, with her right eyeball greatly swollen. There was no corneal trouble and the media were clear, giving a good view of a normal fundus. The vision in either eye was about normal. The eye was not particularly painful. She gave no history of previous eye trouble, but stated that she had been under treatment for kidney disease. Her urine was normal on one examination. The lower lid of the right eye was puffy and that eye gave one the impression of being greatly enlarged. The bulbar conjunctiva and that of the cul de sac were bulging with extravasated serum and the cornea was partially overhung with distended œdematous conjunctiva which extended so far anteriorly as to prevent closure of the lids. There were no hæmorrhages, no secretion and no evidence of panophthalmitis. No localized infection of the conjunctiva could be discovered and no mark of an insect bite, or other trauma was seen. The swelling had developed over night, the patient awakening with a swollen eye. A rhinological examination was made and no sinusitis discovered, although some of the ethmoid cells were destroyed on the right side, and an opening thus made for subsequent drainage should any be necessary. Free hæmorrhage from the nose followed the examination and on the second day the discharge became purulent and abundant. On July 5th, five days after the onset of the trouble, the chemosis had receded considerably and in a few days had quite disappeared. There was nothing further of interest in the case.

It seems reasonable to assume that the intense chemosis was

the result of an acute sinusitis, probably of the ethmoid, in spite of the positive assurance of the rhinologist to the contrary. There are several other possibilities, however, that one should eliminate. Roemer in discussing the differential diagnosis of ocular chemosis, places the various causes leading to such an œdema, under three heads:

1st. Acute inflammation of the conjunctiva, of the cornea and occasionally of the uveal tract; panophthalmitis following injuries to the eye, metastatic purulent ophthalmia and acute inflammatory glaucoma. Under this heading he mentions also inflammations of tissues about the eye, namely hordeolum dacryocystitis, erysipelas, orbital periostitis and very rarely meningitis.

2nd. Stasis of blood and lymph produced by retrobulbar tumors, by exposure to inclement weather, and by various drugs.

3rd. Changes in the composition of the blood occurring in severe anæmia, in Bright's disease, and very rarely associated with menstrual disorders, urticaria, trigeminal neuralgia and migrain.

In the present case none of the causes under the 2nd and 3rd classifications could be assigned with the possible exception of a doubtful nephritis. To me it seems that an intense monocular chemosis cannot be explained as a complication of nephritis nor could an apparently healthy woman suffer so profound a blood change as to produce a localized lymphatic stasis and yet recover completely from it in a few days.

It is more rational to assume that an ethmoiditis, caused a localized orbital periostitis, resulting later in an ocular lymphatic stasis. The subsequent clinical history of the case substantiates such a conclusion.

No rhoentgenogram was made, although advised, either of her sinuses or teeth. Her dentist reported that her teeth were in poor condition, but no foci of infection were discovered.

Simultaneous conditions are of course, not necessarily related as cause and effect, but I am inclined to regard the ocular chemosis in this case as caused by an acute ethmoiditis.

THERAPEUTIC REVIEW.*

(Concluded from the November number.)

SANTOS FERNANDEZ.—The cure of non-syphilitic affections of the eye by mercurials.—(*Archives de Oftalmologia,* March, 1917.)

We must naturally suppose that mercury being an antiparasitic, if it does not have to combat the spirochæte or treponema, will direct its activity against any other element disturbing the economy.

If many eye affections which do not seem to be of syphilitic origin heal by mercurial treatment, this is due to the fact that for the most part they were in reality syphilitic. The author reports several cases of interstitial keratitis which healed under these conditions when they had resisted other treatments.

Clinical experience teaches us to look out for such a general cause, which to discover is often quite difficult; also, if there is no contraindication we must try it with the condition that the patient is attentively watched and that this treatment must be abandoned as soon as necessary.

We agree with the author in acknowledging that the mercurial treatment may have a favorable influence on interstitial keratitis, which is mostly produced by hereditary syphilis. But experience has shown us as well as Fromaget (*Soc. Franc. d'Opht.,* 1910) that this treatment does not act any more efficaciously nor quicker than any other treatment, especially one with arsenic and iodide as a basis. For a long time we have so treated all cases of interstitial keratitis and we can only congratulate ourselves.

When the acute symptoms begin to recede we add to it a local treatment of yellow ointment, calomel ointment or calomel powder alone with massage, according to the tolerance of the eye. Interrupted instillations of dionin have seemed to us to help in clearing up the corneal infiltrations.

In summing up we do not believe the mercury is any more or less indicated in this than in a number of eye affections of unknown origin (different forms of chorioretinitis) in which we employ it because we know it is a bactericide, but without attributing to it a specific action.

As to the use of salvarsan in interstitial keratitis, we condemn it absolutely, not only because it has not proven effective, but especially because we are convinced after several of our own

*La Clinique Ophtalmologique, April, 1917.

observations that this remedy can have disastrous effects by provoking an optic neuritis of an intensity which has hitherto been unknown in the history of syphilis.

KRUECKMANN.—Method of removing a lamellar cataract.—(*Graefe's Arch.*, Vol. 90.)

The method of the author is especially valuable in voluminous lamellar cataracts. With a slightly curved dissecting bistouri with only one cutting edge he enters the conjunctiva 3 mm. outside of the limbus and directs the blade horizontally toward the nasal corneal margin and from there it enters the anterior chamber to the middle of the dilated pupil; then he raises the point of the bistouri to the upper margin of the pupil and slightly incises the anterior lens capsule in the vertical meridian. After this he guides the point of the instrument along the horizontal diameter to the nasal margin of the pupil, turns the bistouri vertically and penetrates horizontally directly into the lens. Thus a large crossed incision is obtained. Then he passes the knife at the temporal end of the incision behind the lens and dislocates it into the anterior chamber. The locality where the incision has been made remains always the same. On the lamellar cataract in the anterior chamber a discission can be made without danger. When a few days later the lens mass is ripened enough for extraction he enters with a lance knife at 3 mm. below the limbus through the conjunctiva and shoves the lance up to the corneal margin and then into the anterior chamber and the cataractous masses, which he dissects still further by gently moving the knife in all directions. The evacuation is easy and complete if done prudently and slowly. Two or three weeks later spectacles may be worn. (*Wochenschr. f. Th. and Hyg. d. Auges*, No. 21, March, 1916.)

HEINE.—Treatment of unilateral poor vision.—(*Muench. med. Wochenschr.*, 1915, No. 43.)

The writer shows that with a stenopæic slit and exercises the visual acuity can be notably improved when the weakness of vision is unilateral. He has examined a great number of cases of "congenital unilateral weakness of vision." It is almost the rule to obtain an immediate improvement in the visual acuity with a hole or a stenopæic slit. Sometimes this is placed vertically, sometimes horizontally. This improvement is greater than can be obtained by correction with glasses alone. It is possible by continuing these exercises to obtain even still greater im-

provements when the stronger eye is lost. In technicians and designers he has at several times treated with better results than with glasses unilateral anomalies of refraction or lack of visual acuity of a congenital amblyopic character with the stenopæic slit. It is important to insure a proper illumination of the objects to be looked at on account of the relatively considerable loss of light which the instrument causes.

The writer then speaks of the correction by means of weak convex glasses held at a certain distance. A congenitally weak eye presents often a notable hyperopia on account of a short axis of the globe. In a case of hypermetropia of 8 D. the eye on account of the shortening of the axis lacks +8 D. in order to be emmetropic. The eye is exactly in the same position as a normal eye artificially rendered hypermetropic by a —8 D. This quantity may be considered negative like the ocular half of an opera glass, the objective half of which may be furnished by a positive lens which is placed more or less far from the eye, according to its visual acuity.

The manner of correction of this hypermetropia, whether it is due to a shortening of the visual axis or to the influence of a cataract extraction, can be utilized not only in aphakial eyes whose visual acuity has been reduced by an affection of the optic nerve or retina, but also in individuals with normal visual acuity when they wear cataract glasses. This method of examination with weak convex glasses is further indicated when simulation is suspected. (*Wochenschr. f. Ther. and Hyg. des Auges,* No. 21, March, 1916).

KIRIBUCKI.—Treatment of trachoma.—(*Graefe's Arch.,* Vol. 90.)

The author recommends a surgical mechanic, and medicamentous treatment as useful in all cases of trachoma without counter-indication. The patient being seated the upper lid is turned and then the palpebral margin is raised by means of a cotton pledget dipped in sublimate solution from the conjunctival side in the direction of the upper orbital margin and slightly compressed. Then with a finger of the other hand through the lower lid pressure is exerted on the eyeball. Then when the patient looks well downward the whole transition fold, the whole upper part of the ocular conjunctiva, the upper tarsal region and the tarsus with the pathological changes it has undergone, can be seen. Then with a narrow instrument cutting on both sides with a slightly concave curve numerous incisions are made into the granulations

and the infiltrated parts; also, in the upper portion of the tarsus, perpendicularly to the surface and penetrating deeper into the tarsal tissue. If there are extensive alterations of the tarsal conjunctiva, and if they reach the lid margin, the granules are punctured and, moreover, numerous punctures are made in the infiltrated region down to the tarsus. Then the granulations and the infiltrations of the transition fold are massaged with a pledget of cotton dipped into a ½ per cent. solution of corrosive sublimate pressing from the conjunctiva on the tarsus. Then by compression the whole upper part of the tarsus is emptied, the finger fixing the palpebral margin, the cotton being placed behind the tarsal border; finally the surface of this region is twice rubbed with the sublimated cotton. Then by pressure the granules and the infiltration of the transition fold and of the upper part of the tarsus are made to project, cleansed and then the other part of the conjunctiva is rubbed. The raw surfaces are cleaned and covered with airol powder by means of dry sterile cotton. In case of ulceration and pannus airol is, also, applied.

Aftertreatment.—During the first three days washing and cleansing of the conjunctival sac and application of airol to the wounds. From the fourth day on every day or every other day friction of the upper part of the tarsus and of the transition fold with cotton dipped in ½ per cent. sublimate solution, cleansing and washing of the conjunctival sac; airol powder on the upper tarsal region and the transition fold. The turned lids are placed one on the other and the conjunctival surfaces are rubbed against each other by circular movements.

The advantages of this method are a considerably shortened period of healing. On the average it takes 1½ months for a cure. Less marked traumatism of the conjunctiva than with the roller forceps or the brushing. Certain and rapid cure of secondary keratitis, which under this treatment does, however, not develop. By carefully applying the after treatment we can stop all tendency to new inflammatory attacks as well as relapses and reinfections. (*Wochenschr. f. Ther. and Hyg. des Auges*, No. 21, March, 1916.)

Theodor Meyer-Steineg.—New observations and results obtained concerning the non-operative treatment of cataract.

The author believes that the method which he has advocated since 1913 (*Wochenschr. f. Ther. and Hyg. d. Auges*, No. 46, 1913) has given good results. To a circular sent out by him to 96 specialists he has received the following answers: 47 did not try

the non-operative treatment; 49 did; among these 24 were unsuccessful, 11 moderately successful, and 17 had a marked success (arresting the progress and even notable improvement).

The treatment demands the minute and continued observation of the case. Several colleagues did not go far enough in their medication.

Since the nature and ætiology of the cataractous process are still unknown we can form no therapeutic method based on a theory; empirism alone can serve us as a guide.

During the development of the affection we observe quite often an increase of refraction; in case an improvement takes place the refractive condition diminishes. The direct examination has shown the author that in half of the cases in which the refraction had been exactly determined before the beginning of the disease an increase of 0.5 D. to 3.5 D.—an average of 1.5 D.—of increase is found; but this modification does not go hand in hand with the opacification of the lens Quite often eyes with 3.5 D. of increase were the ones in which the opacity has progressed least; on the other hand the clear spokes were numerous. In one such case he found only little peripheric opacity, while the lens showed remarkedly regular radiary spokes, dividing it into 15 sectors. A hypermetropia of 1.75 D. noted before the beginning of the affection had changed into a myopia of 1.5 D.; after two months of treatment this was again reduced to 1.5 D. of hypermetropia.

In many cases in which from the very beginning of the treatment the lens changes retrograde, the refractive index of the eye diminishes. An eye at first hypermetropic becomes more so, an emmetrope becomes hypermetropic, and a myope emmetropic, or even hypermetropic. Plainly, a cataract increases the refraction and this is made to diminish under the influences of the treatment.

For more than two years the author has furthermore recognized that the cornea, also, is affected, its curvature undergoes a modification. From that time on he always measured the cornea with the pupil dilated by atropin exactly with the ophthalmometer. In four eyes he found an increase in the length of the radius of the cornea varying from 0.3 to 0.6. Undoubtedly in a cataractous patient, who tires his eye, the visual actuity diminishes much more rapidly than in the one who is careful. The one who makes accommodative efforts makes his cataractous lens change its form and thus modifies its nutrition and invites degeneration.

In the individuals with a rapid diminution of the visual acuity we, also, find parallel with this a rapid increase in the lens opacity.

We must therefore recommend a perfect, or at least a relative rest, of the eye; correct the hypermetropia perfectly, do nothing in a slightly myopic case, and correct a marked myopia only as far as it is indispensable. In a hypermetrope it is well to order weak mydriatics.

The weak eye should be saved from luminous rays by appropriate colored glasses. In order to again permit near vision when the patient improves it will be best to give colored glasses which allow more light to penetrate through their center than through the periphery.

General treatment is absolutely indispensable (the author does not state what).

The local treatment is purely empiric and consists in letting by way of the blood penetrate to the lens or at least to the ciliary body by its surroundings a watery solution of lens substance from some animal containing 3 per cent. of iodide of sodium and 0.35 per cent of chloride of sodium. The author will in a later paper discuss the results obtained in his cataract patients.

The dosage must be weak in order not to harm the vital activity of the delicate region which is being treated. We must in every case find the dose which produces a minimum effect and enlarge it afterwards. It is best to instill at first into the eye a single drop containing this minimal dose and to increase rather the number of the drops than the concentration of the liquid.

E. FRANKE.—Remarks concerning the formation of a stump after removal of the eyeball.—(*Z. f. A.*, Vol. XXXV, 1.)

Ohlecker's procedure for the formation of a stump after enucleation or evisceration of the eyeball, as is known, consists in using a small apophysis of a tarsal or carpal bone; this procedure cannot often be easily made use of for lack of material.

The author gets rid of this inconvenience by conserving his material in Ringer's fluid and submitting it to a proper preparation and boiling at the time of the operation. In order to fasten it he uses three sutures, which he passes as deep as possible from above downward without engaging the muscle in the suture. The results were perfectly satisfactory. (*Wochenschr. f. Th. and Hyg. A.*, November, 1916.)